General

Guideline Title

Prediction and prevention. In: Diagnosis, evaluation, and management of the hypertensive disorders of pregnancy: executive summary.

Bibliographic Source(s)

Magee LA, Pels A, Helewa M, Rey E, von Dadelszen P, Hypertension Guideline Committee. Prediction and prevention. In: Diagnosis, evaluation, and management of the hypertensive disorders of pregnancy: executive summary. J Obstet Gynaecol Can. 2014 May;36(5):425-6.

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Magee LA, Helewa M, Moutquin JM, von Dadelszen P, Hypertension Guideline Committee, Society of Obstetricians and Gynaecologists of Canada. Prediction, prevention, and prognosis of preeclampsia. In: Diagnosis, evaluation, and management of the hypertensive disorders of pregnancy. J Obstet Gynaecol Can. 2008 Mar;30(3 Suppl 1):S16-23.

Recommendations

Major Recommendations

Definitions of the quality of evidence assessment (I-III) and classification of recommendations (A-E, L) are provided at the end of the "Major Recommendations" field.

Predicting Preeclampsia

1. Women should be screened for clinical risk markers of preeclampsia from early pregnancy. (II-2C) See Table 6 in the original guideline document.
2. Consultation with an obstetrician or an obstetric internist, by telephone if necessary, should be considered for women with a history of previous preeclampsia or another strong clinical marker of increased preeclampsia risk, particularly multiple pregnancy, antiphospholipid antibody syndrome, significant proteinuria at first antenatal visit (usually early in pregnancy), or a pre-existing condition of hypertension, diabetes mellitus, or renal disease. (II-2B)
3. Screening using biomarkers or Doppler ultrasound velocimetry of the uteroplacental circulation cannot be recommended routinely at present for women at low or increased risk of preeclampsia until such screening has been shown to improve pregnancy outcome. (II-2C)

Preventing Preeclampsia and Its Complications in Women at Low Risk

4. Calcium supplementation of at least 1 g/d, orally, is recommended for women with low dietary intake of calcium (<600 mg/d). (I-A)
5. The following are recommended for other established beneficial effects in pregnancy: abstention from alcohol for prevention of fetal alcohol

effects (II-2E), exercise for maintenance of fitness (I-A), periconceptual use of a folate-containing multivitamin for prevention of neural tube defects (I-A), and smoking cessation for prevention of low birthweight and preterm birth. (I-E)

6. Periconceptual and ongoing use of a folate-containing multivitamin (I-B) or exercise (II-2B) may be useful in preventing preeclampsia.
7. Prostaglandin precursors and supplementation with magnesium or zinc are not recommended for preeclampsia prevention, but may be useful for prevention of other pregnancy complications. (I-C)
8. Dietary salt restriction during pregnancy (I-D), calorie restriction during pregnancy for overweight women (I-D), low-dose acetylsalicylic acid (I-E), vitamins C and E (based on current evidence) (I-E), and thiazide diuretics (I-E) are not recommended.
9. There is insufficient evidence to make a recommendation about a heart-healthy diet (II-2L); workload or stress reduction (including bedrest) (II-2L); supplementation with iron with or without folate (I-L); vitamin D (I-L); pyridoxine (I-L); or food rich in flavonoids. (I-L)

Preventing Preeclampsia and Its Complications in Women at Increased Risk

10. Low-dose acetylsalicylic acid and calcium supplementation (of at least 1 g/d) for women with low calcium intake are recommended for preventions of preeclampsia in women at high risk. (I-A)
11. Acetylsalicylic acid should be: taken in a low dose (75 to 162 mg/d), (III-B) administered at bedtime, (I-B) initiated after diagnosis of pregnancy but before 16 weeks' gestation, (I-B) and considered for continuation until delivery. (I-C)
12. Prophylactic doses of low-molecular-weight heparin may be discussed in women with previous placental complications (including preeclampsia) to prevent the recurrence of severe or early-onset preeclampsia, preterm delivery, and/or infants that are small for gestational age. (I-B)
13. The following may be useful: L-arginine (I-B), increased rest at home in the third trimester (I-C), and reduction of workload or stress. (III-C)
14. The following may be useful for prevention of other pregnancy complications: prostaglandin precursors (I-B), magnesium supplementation (I-C), and heparin to prevent venous thromboembolic disease. (I-B)
15. The following are recommended for other established beneficial effects in pregnancy (as discussed for women at low risk of preeclampsia): abstention from alcohol (II-2E), periconceptual use of a folate-containing multivitamin (I-A), and smoking cessation. (I-E)
16. The following are not recommended: calorie restriction in overweight women during pregnancy (I-D), weight maintenance in obese women during pregnancy (III-D), antihypertensive therapy specifically to prevent preeclampsia (I-D), and vitamins C and E. (I-E)
17. There is insufficient evidence to make a recommendation about the usefulness of the following: the heart-healthy diet (III-L); exercise (I-L); selenium (I-L); garlic (I-L); zinc, pyridoxine, iron (with or without folate), vitamin D, or multivitamins with/without micronutrients. (III-L)

Definitions:

Quality of Evidence Assessment*

I: Evidence obtained from at least one properly randomized controlled trial

II-1: Evidence from well-designed controlled trials without randomization

II-2: Evidence from well-designed cohort (prospective or retrospective) or case–control studies, preferably from more than one centre or research group

II-3: Evidence obtained from comparisons between times or places with or without the intervention. Dramatic results in uncontrolled experiments (such as the results of treatment with penicillin in the 1940s) could also be included in this category

III: Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

*Adapted from The Evaluation of Evidence criteria described in the Canadian Task Force on Preventive Health Care.

Classification of Recommendations†

A. There is good evidence to recommend the clinical preventive action

B. There is fair evidence to recommend the clinical preventive action

C. The existing evidence is conflicting and does not allow to make a recommendation for or against use of the clinical preventive action; however, other factors may influence decision-making

D. There is fair evidence to recommend against the clinical preventive action

E. There is good evidence to recommend against the clinical preventive action

L. There is insufficient evidence (in quantity or quality) to make a recommendation; however, other factors may influence decision-making

†Adapted from the Classification of Recommendations criteria described in the Canadian Task Force on Preventive Health Care.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Preeclampsia

Guideline Category

Prevention

Risk Assessment

Screening

Clinical Specialty

Family Practice

Internal Medicine

Obstetrics and Gynecology

Intended Users

Advanced Practice Nurses

Nurses

Physician Assistants

Physicians

Guideline Objective(s)

- To present in brief the current evidence assessed in the clinical practice guideline prepared by the Canadian Hypertensive Disorders of Pregnancy Working Group and published by *Pregnancy Hypertension* to provide a reasonable approach to the diagnosis, evaluation, and treatment of the hypertensive disorders of pregnancy (HDP)
- To support evidence-based maternity care of women who are planning pregnancy and are at risk of a HDP, have an HDP in the current pregnancy, or are postpartum and had an HDP

Target Population

Women who are planning pregnancy and are at risk of a hypertensive disorder of pregnancy (HDP), have an HDP in the current pregnancy, or are postpartum and had an HDP

Interventions and Practices Considered

Screening

1. Screening for clinical risk markers
2. Consultation with an obstetrician or an obstetric internist
3. Screening using biomarkers or Doppler ultrasound velocimetry of the uteroplacental circulation (not routinely recommended)

Prevention

Women at Low Risk

1. Calcium supplementation
2. Abstention from alcohol
3. Exercise
4. Folate-containing multivitamin
5. Smoking cessation

Note: The following interventions were considered but not recommended or there was insufficient evidence to make a recommendation: prostaglandin precursors, supplementation with magnesium or zinc, dietary salt restriction during pregnancy, calorie restriction during pregnancy (overweight women), low-dose acetylsalicylic acid, vitamins C and E, thiazide diuretics.

Women at Increased Risk

1. Low-dose acetylsalicylic acid
2. Calcium supplementation
3. Prophylactic doses of low-molecular-weight heparin
4. L-arginine
5. Increased rest at home in the third trimester and reduction of workload or stress
6. Prostaglandin precursors and magnesium supplementation (for prevention of other pregnancy complications)
7. Abstention from alcohol
8. Periconceptual use of folate-containing multivitamin
9. Smoking cessation

Note: The following interventions were considered but not recommended or there was insufficient evidence to make a recommendation: calorie restriction and weight maintenance (overweight/obese women), antihypertensive therapy specifically to prevent preeclampsia, vitamins C and E, heart-healthy diet, exercise, selenium, garlic, zinc, pyridoxine, iron (with or without folate), vitamin D, or multivitamins with/without micronutrients.

Major Outcomes Considered

- Risk of development of preeclampsia
- Maternal end-organ dysfunction
- Fetal manifestations of preeclampsia
- Preeclampsia imitators
- Maternal and perinatal morbidity
- Accuracy of all blood pressure measurement devices

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Searches of Unpublished Data

Description of Methods Used to Collect/Select the Evidence

Published literature was retrieved through searches of MEDLINE, Cumulative Index of Nursing and Allied Health Literature (CINAHL), and The Cochrane Library in March 2012 using appropriate controlled vocabulary (e.g., pregnancy, hypertension, pre-eclampsia, pregnancy toxemias) and key words (e.g., diagnosis, evaluation, classification, prediction, prevention, prognosis, treatment, postpartum follow-up). Results were restricted to systematic reviews, randomized control trials, controlled clinical trials, and observational studies published in French or English between January 2006 and February 2012. Searches were updated on a regular basis and incorporated in the guideline to September 2013. Grey (unpublished) literature was identified through searching the websites of health technology assessment and health technology-related agencies, clinical practice guideline collections, clinical trial registries, and national and international medical specialty societies.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Quality of Evidence Assessment*

I: Evidence obtained from at least one properly randomized controlled trial

II-1: Evidence from well-designed controlled trials without randomization

II-2: Evidence from well-designed cohort (prospective or retrospective) or case–control studies, preferably from more than one centre or research group

II-3: Evidence obtained from comparisons between times or places with or without the intervention. Dramatic results in uncontrolled experiments (such as the results of treatment with penicillin in the 1940s) could also be included in this category

III: Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

*Adapted from The Evaluation of Evidence criteria described in the Canadian Task Force on Preventive Health Care.

Methods Used to Analyze the Evidence

Systematic Review

Description of the Methods Used to Analyze the Evidence

The quality of evidence in the guideline summarized here was rated using the criteria described in the Report of the Canadian Task Force on Preventative Health Care (see the "Rating Scheme for the Strength of the Evidence" field).

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Not stated

Rating Scheme for the Strength of the Recommendations

Classification of Recommendations*

A. There is good evidence to recommend the clinical preventive action

B. There is fair evidence to recommend the clinical preventive action

C. The existing evidence is conflicting and does not allow to make a recommendation for or against use of the clinical preventive action; however, other factors may influence decision-making

D. There is fair evidence to recommend against the clinical preventive action

E. There is good evidence to recommend against the clinical preventive action

L. There is insufficient evidence (in quantity or quality) to make a recommendation; however, other factors may influence decision-making

*Adapted from the Classification of Recommendations criteria described in the Canadian Task Force on Preventive Health Care.

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

Internal Peer Review

Description of Method of Guideline Validation

The guideline has been prepared by the Canadian Hypertensive Disorders of Pregnancy Working Group, reviewed and approved by the Hypertension Guideline Committee, reviewed by the Maternal Fetal Medicine and Family Physician Advisory committees, and approved by the Executive and Council of the Society of Obstetricians and Gynaecologists of Canada.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

The expected benefit of this guideline is improved outcomes for mother, baby, and child through evidence-advised practice.

Potential Harms

Not stated

Qualifying Statements

Qualifying Statements

This document reflects emerging clinical and scientific advances on the date issued and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed. Local institutions can dictate amendments to these opinions. They should be well documented if modified at the local level. None of these contents may be reproduced in any form without prior written permission of the Society of Obstetricians and Gynaecologists of Canada (SOGC).

Implementation of the Guideline

Description of Implementation Strategy

The Appendix (see Table 10 in the full version of the original guideline document [see the "Availability of Companion Documents" field]) lists tools to support the application of this guideline. Some Web sites provide general information about blood pressure (BP) measurement for non-pregnant patients, but the recommendations are similar enough to those for pregnant women to be useful. Patients, their partners, and their care providers should be well educated about the hypertensive disorders of pregnancy (HDP), and relevant sites are listed.

Implementation of any evidence depends on individual knowledge and beliefs, as well as institutional culture. Strong recommendations should be incorporated into clinical practice. In well-resourced settings, almost all preeclampsia-related maternal deaths involve substandard care.

Some updates to the 2008 Society of Obstetricians and Gynaecologists of Canada (SOGC) guidelines on the HDP may require additional effort to implement.

Physicians should consider the category "other HDP" (white-coat and masked hypertension) as part of the classification of hypertensive women and consider using some form of out-of-office BP measurement to evaluate women with non-severe pre-existing or gestational hypertension.

Health care providers should inform pregnant women about the symptoms and signs of the HDPs and refer them to appropriate knowledge translation tools.

The developer recommends the use of corticosteroids for women ≤ 34+6 weeks' gestation who are at high risk of delivery within the next seven days. This gestational age cut-off represents a fundamental change in practice that will require discussion.

Physicians should be familiar with the blood bank policies of their own hospital.

Physicians should be aware of postpartum signs of maternal posttraumatic stress disorder and the maternal and perinatal long-term effects of HDPs, especially at this vulnerable time in maternal care when the maternity care provider is often handing back care to the primary care physician.

The reader is reminded to refer to the full open-access guideline published in Pregnancy Hypertension, which contains not only the recommendations presented here, but also all explanatory text and additional references.

Implementation Tools

Foreign Language Translations

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

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Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2008 Mar (revised 2014 May)

Guideline Developer(s)

Society of Obstetricians and Gynaecologists of Canada - Medical Specialty Society

Source(s) of Funding

Society of Obstetricians and Gynaecologists of Canada

Guideline Committee

Canadian Hypertensive Disorders of Pregnancy Working Group

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Financial Disclosures/Conflicts of Interest

Disclosure statements have been received from all members of the committee.

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Magee LA, Helewa M, Moutquin JM, von Dadelszen P, Hypertension Guideline Committee, Society of Obstetricians and Gynaecologists of Canada. Prediction, prevention, and prognosis of preeclampsia. In: Diagnosis, evaluation, and management of the hypertensive disorders of pregnancy. J Obstet Gynaecol Can. 2008 Mar;30(3 Suppl 1):S16-23.

Guideline Availability

Electronic copies: Available in Portable Document Format (PDF) from the Society of Obstetricians and Gynaecologists of Canada (SOGC) Web site . Also available in French from the SOGC Web site .

Print copies: Available from the Society of Obstetricians and Gynaecologists of Canada, La société des obstétriciens et gynécologues du Canada (SOGC) 780 promenade Echo Drive Ottawa, ON K1S 5R7 (Canada); Phone: 1-800-561-2416.

Availability of Companion Documents

The following is available:

- Magee LA, Pels A, Helewa M, Rey E, Von Dadelszen P, Canadian Hypertensive Disorders of Pregnancy (HDP) Working Group. Diagnosis, evaluation, and management of the hypertensive disorders of pregnancy. Pregnancy Hypertens. 2014 Apr;(4)2:104-45. Electronic copies: Available from the Pregnancy Hypertension: An International Journal of Women's Cardiovascular Health Web site .

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on February 17, 2009. The information was verified by the guideline developer on March 13, 2009. This summary was updated by ECRI Institute on June 5, 2014. The information was verified by the guideline developer on June 23, 2014.

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